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SS4: Body boundary changes in person-centred psychotherapy

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Abstract— Consistent with the assumption that the internalisation of parental and social values and behavioural expectations represents the most important influence on the formation of body boundaries (Fisher & Cleveland, 1958), and acts as a primary cause of psychological disturbances (Rogers, 1961), this study explored body boundary changes in person-centred therapy transcripts. The results demonstrated a decline in barrier imagery in High Barrier patients (N = 5) and an increase in barrier imagery in Low Barrier patients (N = 5) in the therapeutic process. An autoregressive polynomial regression analysis of barrier imagery in High and Low Barrier patients also resonated with the fourth and fifth stages of behavioural changes in the Transtheoretical Therapy Model (TTM) (Prochaska & DiClemente, 1983; McConaughy et al., 1983).

Keywords— Body boundaries, content analysis, psychotherapy, polynomial regression analysis

1. INTRODUCTION

The body boundary concept was devised by Fisher and Cleveland (1958) and proposed that individuals would “show wide differences in the degree to which they experience their body boundaries as definite and firm versus indefinite and weak” (p. 56). Based on a series of experiments using the Rorschach inkblot test, they devised a manual scoring system that classifies semantic content as barrier imagery or penetration imagery. Barrier imagery relates to the protective and shielding qualities of objects and

surfaces (e.g., ‘a tower with stone walls’), whereas penetration imagery relates to the permeability and enterable features of objects (e.g., ‘an amputated leg’). Fisher and Cleveland’s empirical research showed that High Barrier individuals are characterised by a social- and goal-oriented personality, whereas Low Barrier individuals have a heightened concern for security and enjoy solitary activities. They also identified that early socialisation experiences act as the most important factor in the development of body boundaries to the extent that High Barrier individuals internalise their mothers’ secure model and strong sense of values and behavioural expectations, and Low Barrier individuals internalise their families’ atmosphere, characterised by instability and insecurity. The body boundary of High Barrier individuals would then embed the internalized social values as well as embodying primordial mental activity, whereas Low Barrier individuals would be closer to conceptual thought (Cariola, forthcoming).

Although a supportive early social environment is typically perceived to be valuable, person-centre theory (Rogers, 1961) is based on the assumption that the introjection of parental values that prescribe what is considered acceptable and love-worthy behaviour, which are however incongruent with the experiences of the individual’s phenomenological self, would represent a primary cause of psychological disturbances. Through the process of therapy, based on the core conditions of unconditional positive regard, empathy

and congruence that inform the therapeutic alliance, patients would be able to develop the courage to trust their own emotions and experiences of their phenomenological self. Whereas Rogers proposes seven successive stages that underpin therapeutic personality changes, Prochaska and colleagues' (Prochaska & DiClemente, 1983; McConaughy et al., 1983) Transtheoretical Model of Change (TTM) identified four stages of behavioural change. In the 'Precontemplation' stage, patients are not aware of the existence of their problems. Patients in the 'Contemplation' stage have an awareness of their problems and think about the possibility of change. In the 'Action' stage, patients engage in overt behavioural changes. The final 'Maintenance' stage refers to the process in which patients reinforce and reflect upon their new behaviour and the resolution of their problems to prevent and minimise the risk of future relapse.

Given that the aim of Rogerian theory is for therapists to support patients to allow them to trust their phenomenological experiences, independent of their

internalised values that represent a central feature in the body boundary formation, the first hypothesis (H1) predicted that Low Barrier patients would show an increase in barrier imagery and semantic content associated with primordial mental activity, and High Barrier patients would show a decrease in barrier imagery and semantic content associated with primordial mental activity at the end of therapy, compared to the first psychotherapy sessions. The second hypothesis (H2) predicted that progressive therapy sessions would be correlated negatively with barrier imagery and semantic content associated with primordial mental activity in High Barrier patients, but the sessions would be correlated positively with barrier imagery and semantic content associated with primordial mental activity in Low Barrier patients. Based on the four stages of behavioural change proposed by the TTM model (Prochaska & DiClemente, 1983; McConaughy et al., 1983), a final, third hypothesis (H3) predicted that barrier imagery of the patients' verbal behaviour would follow a four-stage polynomial regressive pattern.

2. METHOD

2.1 Data and Participants

This study was based on the analysis of psychotherapy transcripts sourced from the online 'Counselling and Psychotherapy Transcripts' database (2012). The psychotherapy transcripts were based on 10 patients (6 men and 4 women) who attended 20 consecutive, Rogerian person-centred psychotherapy sessions once a week. The patients' verbal behaviour had a total text length of 1,181,755 words, with a mean of 6,353.52 words per therapy session transcript ($SD = 2,941.97$).

2.2 Content analysis

The Body Type Dictionary (BTD) (Wilson, 2006; Cariola, 2014a, 2014b) is

a reliable and valid computerised dictionary that calculates the frequency of semantic items categorised as barrier imagery or penetration imagery, based on Fisher and Cleveland's (1958) scoring system. The BTD contains 551 words for barrier imagery, 231 words for penetration imagery, and 70 exception words that prevent the erroneous matching of ambiguous word stems that are assigned to 12 semantic categories.

The Linguistic Word Count Inquiry text analysis program (LIWC) (Pennebaker, Booth, & Francis, 2007) calculates the frequencies of predefined types of semantic items and syntactic content. The LIWC is based on approximately

4,500 words and word stems that are assigned to 80 semantic categories.

For the computerised content analysis, the BTM and LIWC were applied to the texts using the PROTAN content analysis software program, which measures the occurrence of category-based lexical content in texts (Hogenraad et al., 2003). A frequency count was computed to identify how many lexical items in total (i.e., tokens) match the dictionary categories.

2.3. Statistical analysis

By drawing on the methodology applied by Fisher and Cleveland (1958), the median value of 1.42 for the barrier imagery frequency of the first therapy session of each patient was used to divide the therapy transcripts into patients that used high and low frequencies of barrier imagery. Of the total 10 patients, 5 patients were classified as High Barrier patients and 5 were classified as Low Barrier patients.

A non-parametric, repeated-measures, Wilcoxon-signed rank test compared the frequencies of barrier imagery between patients' first and final (twentieth)

psychotherapy sessions. A Spearman rank correlation coefficient (Spearman, 1904) was then used to assess the strengths of the associations between barrier imagery, the semantic content, as measured using the LIWC, of the verbal behaviour in the therapy transcripts of High and Low Barrier patients. Subsequently, a series of polynomial regression analyses were performed using the statistical software program 'R' (Ihaka & Gentleman 1996) in combination with a 'Linear and Nonlinear Mixed Effects Models' statistical package (Pinheiro et al., 2014). The data series of the BTM were assessed up to a fifth degree (Hoel, 1968). The goodness of fit of the polynomial regressions was determined using the Akaike information criterion (AIC) (Akaike, 1974) and the Bayesian Information Criterion (BIC) (Schwartz, 1978) at a $p < .05$ significance level. The model with the lowest AIC and BIC value is assumed to reflect the best polynomial fit. The significance of a polynomial model was gauged using the likelihood-ratio analysis of variance between each polynomial and a model with one intercept (Wilson, 2006).

3. RESULTS

A Wilcoxon-signed rank test identified that Low Barrier patients used significantly more barrier imagery at the end of therapy compared to their first session but the reduction of barrier imagery in High Barrier patient was not at a significant level; thus, the first (H1) hypothesis was partly confirmed (see Appendix 1 and 2).

High Barrier patients, however, had a reduction in discrepancy words (e.g., should, would, could), reflecting a reduction in internalised parental behavioural and emotional absolutist rigid self- and other-demands, associated

with a neurotic personality organisation (Ellis, 1994; Horney, 1950). A reduction of demands would also coincide with an actualizing tendency in which an individual's fulfilled potentials would lower the perceived discrepancies between the phenomenological and ideal self, and thus resulting in an improved sense of life satisfaction (Higgins et al., 1986; Ogilvie, 1987). In particular, clarification of these introjects would result in the integration of previously split-off parts of the self. By drawing on social identity theory (Tajfel, 1959; Tajfel & Wilkes, 1963), such an integration might then also produce a

greater tolerance towards one's own and other's action tendencies, such as the expression of emotions and insights, and thus less likely to engage in the process of splitting in which perceived differences would be exaggerated and resulting in the formation of dichotomous "good" vs. "bad" group categorizations associated with primordial mental activity (Rayner, 1995). High Barrier patients also showed an increase in bodily references (e.g., cheek, hands, spit) indicating heightened somatosensory awareness. An increase in seeing words (e.g., view, saw, seen) was associated with an inflation in sensory processes related with an immediacy of social relations and an association with figurative expressions using a SEEING IS KNOWING schema — e.g., *"I can see it in all of them."*

An increase in body boundary finiteness in Low Barrier patients indicates that the therapeutic process enabled patients to internalise values and judgments that represent stable foundations of functional self- and other-relating. Given that Low Barrier personalities have experienced an early family environment characterized by a lack of supportive structures, the therapeutic alliance might have facilitated Low Barrier patients to formulate more functional and thicker body boundaries. There was a reduction of anxiety words (e.g., worried, fearful, nervous) related to the beneficial effects of the empathic and unconditional regard of the therapeutic alliance which might have enabled the patients to develop an improved sense of self-worth in which the self is seen as loveable and worthy of respect as well as a greater trust to engage in social interactions that are not a threat to the self but are perceived as reasonable caring social relations instead. Low Barrier patients also showed an increase of common verbs (e.g., walk, went, see), and thus reflecting an action orientated tendency, which represents

semantic content congruent with conceptual thoughts. Conversely, a reduction of semantic content associated with primordial mental activity, such as articles (e.g., a, an, the) and references related to work (e.g., job, majors, xerox) and achievement (e.g., earn, hero, win) shows that Low Barrier patients were even less success and object orientated at the end of psychotherapy compared to the first session.

In addition, a series of Spearman rank correlation coefficient showed that in High Barrier patients progressive sessions were negatively correlated with barrier imagery, but progressive sessions were not positively correlated with barrier imagery in Low Barrier patients, and thus, the second hypothesis (H2) was only partly confirmed (see Appendix 3 and 4). This reduction in barrier imagery in High Barrier patients might be indicative of the empathic and non-judgmental therapeutic alliance enabling patients to explore and reflect upon their emotions and thoughts, such as anxieties and traumatic experiences. This exploration and reflection may have resulted in a lower encapsulating body boundary and muscular sensitivity associated with a conditioned punishment-reward response (Cariola, 2014a). A reduced body boundary enables a functional self-other differentiation, facilitating patients' ability to acknowledge their feelings and to be reliant on their own value judgments, concurrent with a greater capacity to trust others. This functional body boundary would allow patients to fulfill their potentials and resolve their sadomasochistic submission to social values that maintain the discrepancy between the phenomenological self and socially dependent self-concept.

In High Barrier patients, there was also a negative correlation between progressive sessions and first-person singular

pronouns (e.g., I, me, mine), as well as death references (e.g., bury, coffin, kill). A reduction of death-related words show the lessening of themes related to suicidal ideation as well as annihilation anxieties activated in the therapeutic process and related to patients' current life situations, such as the fear of not being able to cope, feelings of emptiness or loss of identity (Hurvich, 2003). Given the relationship between anxiety and death-related themes, empirical research has identified that an increase in thoughts about death would be associated with an increase in polarised judgments of group memberships as a means to ward off unconscious annihilation anxieties (Baldwin & Wesley, 1996).

Taking into consideration that Low Barrier personalities' early family environments are characterised by a lack of supportive structures and, to some extent, aggressive interactions, that would result in their tendency to engage in solitary activities, the reduction in negative emotion words (e.g., hurt, ugly, nasty), such as anger words (e.g., hate, kill, annoyed) and anxiety words (e.g., worried, fearful, nervous) in Low Barrier patients might be associated with a deflation in latent social anxieties and interpersonal problems, including feelings of rejection. This deflation would result in an increased ability to engage with their social environment, to meet the perhaps previously unacknowledged needs to feel loved and appreciated by others and to be more open to being loving and amicable towards other social members. Such an increased openness to other might be also reflected in the increase of social references (e.g., mate, talk, they), second person pronouns (e.g., you, your, thou) and third-person plural pronouns (e.g., they, their), and therefore representing a shift towards inclusive thought

associated to primordial mental activity. In particular, the gradual decline in sadness words (e.g., crying, grief, sad) within the therapeutic process would be associated with a deflation in the presence of depressive symptoms presented in Low Barrier patients at the beginning of therapy. A reduction in self-references (e.g., I, me, mine) and negative emotion words (e.g., hurt, ugly, nasty) might be also associated with a reduced attention to emotional painful experiences (Tauszik & Pennebaker, 2010). There were also positive correlations between progressive sessions and monetary references (e.g., audit, cash, owe), and motion words (e.g., arrive, car, go), with the former indicating a linear increase of materialistic theme and the latter related to an increase in primordial cognition.

Furthermore, and partly consistent with the third hypothesis (H3), a series of autoregressive polynomial analyses indicated that the vast majority of the longitudinal behaviour of barrier imagery in High and Low Barrier patients was best modelled by 3-, 4- and 5-stage patterns. Although some of these patterns were based on five stages (see Figure 1), the curves showed only four visually distinctive changes of direction in Low Barrier patients, which might be due to the presence of a prolonged and horizontally stretched curve stage (see Figure 2). The frequencies of barrier imagery in High and Low Barrier patients also did not follow the same directions. Some curves followed a rise-fall-rise-fall(-rise) pattern, and some curves followed a fall-rise-fall-rise(-fall) pattern. Following further exploration of the relationship between patients' symptoms and the barrier imagery curve patterns, all patients presenting depressive symptoms reflected a tendency to have 5-stage patterns.

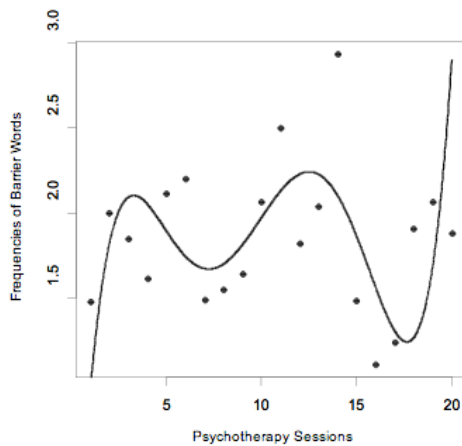


Figure 1— Five-stage autoregressive polynomial curve of a High Barrier patient with depressive symptoms

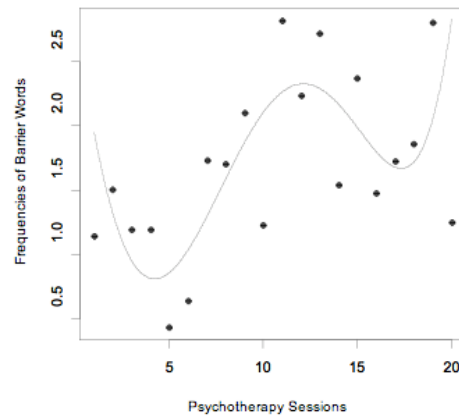


Figure 2— Five-stage autoregressive polynomial curve of a Low Barrier patient with depressive symptoms

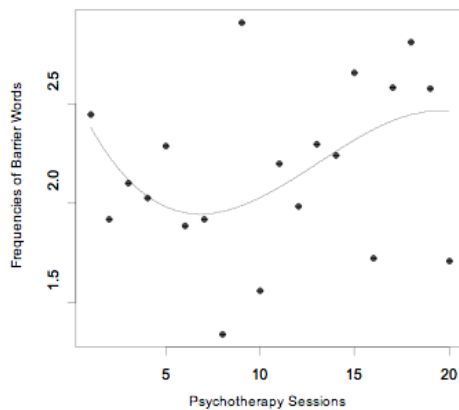


Figure 3— Three-stage autoregressive polynomial curve of a High Barrier patients with sexual dysfunction

In Low Barrier patients, four patients followed a 5-stage pattern, of which three patients had depressive symptoms, and one patient presented other symptoms (i.e., anxiety-related symptoms), showed a 4-stage pattern. A 3-stage curve pattern was, however, only identified in High Barrier patients that presented problems related to intimacy and sexual functioning (see Figure 3). Out of this context, the results are only partly consistent with the 4 stages of the TTM model (McConaughy et al., 1983). In contrast, the 5-stage model associated with depressed patients resonates with the existence of the TTM's originally

defined intermediate 'Preparation' stage in which patients are trying to make changes but a more refined action plan needs to be formulated (Prochaska & DiClemente, 1983). Given that patients with depression often show negative cognitions that results in slower therapeutic changes (Beevers et al., 2007) compared to non-depressed patients who require more time to formulate a concrete action pan, the presence of an intermediate 'Preparation' stage might be reflected in the 5-stage pattern of barrier imagery, which appears to be prolonged and horizontally stretched-out in form of four visually distinctive changes of direction in Low Barrier patients.

4. DISCUSSION

The results of this study were partly consistent with the research hypotheses. The therapeutic process resulted in a decrease in barrier imagery in High Barrier patients and an increase of barrier imagery in Low Barrier patients. In this sense, therapy enabled patients to increase their previously thin bodily boundaries whereas patients with thick boundaries were able to reduce their body boundaries by clarifying their internalized values and exploring their emotional experiences within an

empathic therapeutic environment. There were also changes in semantic content in High and Low Barrier patients who indicated some changes in emotional processes, such as a reduction of discrepancy words in High Barrier patients as well as reductions in negative emotions and an increase in social cognition in Low Barrier patients. One of the most interesting finding was that barrier imagery followed a non-linear pattern in both patient types to the extent that 3-, 4- and 5-stage patterns were identified. Specifically, the presence of such a 4- and 5-stage pattern resonates with the TTM model; conversely, the presence of a 3-stage pattern within the TTM framework of behavioral change, such as identified in High Barrier patients presenting sexual disorders, has not been previously proposed by empirical literature.

Despite these promising results, one of the obvious shortcomings of this

tentative study is the relatively small sample size. Therefore, future research should repeat the current study using a greater sample size. Future studies should also explore the longitudinal behaviour of barrier imagery in open-ended therapy in the treatment of depression and other symptoms. Although this study focused on patients' verbal behaviour only, future research should investigate the relationship between patients' and the therapists' verbal behaviour as well as if it has implications for psychotherapeutic success. Furthermore, given that the person-centred approach to a successful personality changes is based on a functional therapeutic alliance which is characterized by the core conditions of empathy, unconditional positive regard and congruence (Rogers, 1961), future studies should identify to what extent the results of this study are generalisable to other therapeutic modalities.

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Appendix 1— Descriptive statistics and Wilcoxon signed-rank test results of semantic content in the first and final therapy session of High Barrier patients

<i>Linguistic variable</i>	<i>First session (N = 5)</i>				<i>Twentieth session (N = 5)</i>					<i>Sig.</i>
	<i>Mean</i>	<i>Median</i>	<i>SD</i>	<i>IQR</i>	<i>Mean</i>	<i>Median</i>	<i>SD</i>	<i>IQR</i>		
Barrier	2.08	2.08	.42	.78	1.51	1.63	.36	.63	FI > TW	ns
Discrepancy	3.71	3.62	.37	.59	3.29	3.32	.41	.69	FI > TW	*
Body	1.24	1.18	.19	.36	1.86	1.91	.27	.45	FI < TW	*
Seeing words	1.93	1.98	.24	.48	2.49	2.39	.29	.51	FI < TW	*

Notes: * $p < .05$ level, ** $p < .01$ level, FI = First session, TW = Twentieth session

Appendix 2— Descriptive statistics and Wilcoxon signed-rank test results of semantic content in the first and final therapy session of Low Barrier patients

<i>Linguistic variable</i>	<i>First session (N = 5)</i>				<i>Twentieth session (N = 5)</i>					<i>Sig.</i>
	<i>Mean</i>	<i>Median</i>	<i>SD</i>	<i>IQR</i>	<i>Mean</i>	<i>Median</i>	<i>SD</i>	<i>IQR</i>		
Barrier imagery	1.06	.99	.19	.34	1.41	1.27	.44	.66	FI < TW	*
Common verbs	14.35	14.45	.33	.65	14.75	14.75	.15	.27	FI < TW	*
Articles	6.36	6.24	.68	1.22	5.77	5.82	.47	.85	FI > TW	*
Anxiety	1.94	1.89	.38	.59	1.64	1.69	.15	.28	FI > TW	*
Achievement	3.05	2.86	.58	.87	2.54	2.64	.40	.76	FI > TW	*
Work	3.13	3.18	.54	.92	2.54	2.47	.21	.39	FI > TW	*

Notes: * $p < .05$ level, ** $p < .01$ level, FI = First session, TW = Twentieth session

Appendix 3— Spearman rank correlation coefficients between progressive therapy sessions and semantic content in High Barrier patients

Linguistic variable	Barrier imagery
Barrier	-.213*
1 st singular pronouns	-.229*
Death	-.278*

Notes: * $p < .05$ level, ** $p < .01$ level

Appendix 4— Spearman rank correlation coefficients between progressive therapy sessions and semantic content in Low Barrier patients

Linguistic variable	Barrier imagery
1 st singular pronouns	-.230*
2 nd pronouns	.215*
3 rd plural pronouns	.244*
Social	.242*
Negative emotions	-.274**
Anger	-.226*
Anxiety	-.333**
Sadness	-.262*
Money	.345**
Motion	.241*

Notes: * $p < .05$ level, ** $p < .01$ level